

Appl. No. 09/943,821
Amdt. dated August 3, 2004
Reply to Office Action of May 27, 2004

REMARKS

This communication is responsive to the Office Action dated May 27, 2004. Thus, the deadline for response to this Office Action within the shortened statutory period of three months is August 27, 2004. Thus, the present communication mailed on July 26, 2004, is timely filed and no fee is required.

Claims 1 through 9 remain in this application. Claims 10 through 17 have been withdrawn.

Claim Rejections

Claims 1, 8 and 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by Evans et al., US Patent No. 3,644,199.

Evans discloses a process for converting a petroleum stock in the presence of a fluidizable conversion catalyst in a vertical elongated transport reactor, 10. Contained within the vertical elongated transport reactor, 10, is an internal, elongated, open-ended tube closeable at the upper end, otherwise referred to in Evans as the riser tube, 20. The purpose of riser tube 20 as disclosed in Evans is, by adjusting rod 23, plug 22 can be positioned relative to flared section 21 so that a predetermined flow through tube 20 can be achieved, corresponding to the flow attainable with a smaller effective diameter of a reactor. (Column 2, lines 8-11). Riser tube 20 allows the vertical elongated transport reactor 10 to attain a smaller effective diameter with the reactor, hence varying the volume of the reactor, and therefore effecting the catalyst-oil contact time and the dispersion velocity. (Column 1, lines 30-45). Furthermore, the top end of riser tube 20 can be closed completely or opened completely. (Column 2, lines 60-67).

The present invention relates to adjusting catalyst holdup in a circulating fluid bed. Catalyst holdup is the amount of catalyst that is contained within the reaction zone of a circulating fluid bed reactor. (Page 3, lines 21-23). Applicants argue that the control

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means 30, 30' and separation means 18, 18' in the present invention do not impact the velocity nor the contact time in the reaction zone. Rather, the control means 30, 30' and separation means 18, 18' "reflux" the catalyst back into the reaction zone to affect conversion. In Evans, the plug 22 diverts flow away from the riser tube 20 and into the annular area of the reactor 10. Furthermore, the present invention allows for adjustment of the catalyst holdup independently of catalyst circulation rate, which provides an advantage of having the ability to maintain a conversion level as catalyst activity or feed rates change. (Page 4, lines 4-6). Catalyst circulation rate is the amount of catalyst that flows into and out of the reaction zone of the circulating fluid bed reactor. (Page 5, lines 5-6).

Applicants respectfully argue that the Evans reference does not disclose the use of a control means 30, 30' and a separation means 18, 18' to impact the catalyst holdup while maintaining a substantially constant catalyst circulation rate through the reaction zone as disclosed in the present invention. Therefore, applicants respectfully request withdrawal of the rejection and reconsideration of claims 1, 8, and 9.

Claims 2-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Evans.

The Examiner points out that Evans does not disclose that the catalyst circulation rate is maintained within the ranges of plus or minus 10%-25% and does not disclose the weight hourly space velocity ranges of at least 1 hr⁻¹-10 hr⁻¹ as disclosed in the present invention.

It is respectfully submitted that contrary to the Examiner's contention, a prima facie case of obviousness has not been established. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

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In re Rouffet, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998); *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Lastly, the prior art reference must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 983-85, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

As argued above, the Evans reference does not disclose the use of a control means 30, 30' and a separation means 18, 18' to impact the catalyst holdup while maintaining a substantially constant catalyst circulation rate through the reaction zone as disclosed in the present invention. Applicants respectfully argue that there is no suggestion or motivation in Evans to modify the Evans process to achieve the present invention. The Examiner's contends that Evans discloses that catalyst circulation rate is generally fixed, therefore suggesting to one of ordinary skill in the art to maintain a nearly constant circulation rate. This disclosure does not suggest to one having ordinary skill in the art to adjust catalyst holdup by the separation means 18, 18' in order to achieve a catalyst circulation rate maintained to within plus or minus 10%-25%. The Examiner also contends that Evans discloses that process conditions can vary within large ranges, therefore suggesting to one of ordinary skill in the art to adjust weight hourly space velocity values to obtain the desired conversion. This disclosure does not suggest to one having ordinary skill in the art to adjust catalyst holdup within the reaction zone by the separation means 18, 18' while maintaining a substantially constant catalyst circulation rate through the reaction zone operated at a weight hourly space velocity of at least 1 hr^{-1} - 10 hr^{-1} .

Furthermore, Evans does not teach or suggest to one of ordinary skill in the art to modify the process of Evans by adjusting the weight hourly space velocity as claimed or maintaining the catalyst circulation rates as claimed in order to achieve the present invention. Therefore, applicants respectfully request withdrawal of the rejection and reconsideration of claims 2-7.

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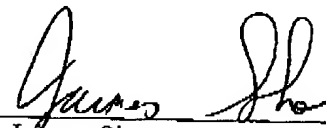
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Therefore, it is respectfully submitted that the claims overcome the rejections set forth in the Office Action, and thus place the claims in condition for allowance. Reconsideration and withdrawal of all rejections of the claims are respectfully requested.

Applicants invite the Examiner to telephone the undersigned if there are any issues outstanding that have not been presented to the Examiner's satisfaction.

Respectfully submitted,

August 3, 2004
Date



James Sher
Attorney for Applicant
Registration No. 34,726

ExxonMobil Chemical Co.
Law Technology Department
P.O. Box 2149
Baytown, Texas 77522-2149
Phone: 281-834-1298
Fax: 281-834-2495